1. For a computer-executable program that operates on a data structure, where the data structure must have a required state at selected program points, a method of transforming said program comprising the steps of:

(A) analyzing the program to determine the state of said data structure at said selected program points;

(B) partitioning said determined state at each said program point into components that may each be set separately;

(C) determining the operations required to set each component of the state at each selected program point; and

(D) placing said operations in a way that eliminates partial redundancies of said operations.

2. The method of claim 1, wherein the data structure stores items on a first-in last-out basis.

3. The method of claim 2, wherein the states of the data structure are represented as paths on a tree of nodes where:

(A) each path traverses the tree towards the root, and

(B) each node on the path represents a component of the state.

4. The method of claim 2, wherein the data structure represents actions to be taken by the program if an exceptional situation arises.

5. The method of claim 4, wherein the selected program points are the points of execution immediately before instructions that might cause an exceptional situation.

6. The method of claim 5, wherein the actions to be taken are represented explicitly as exceptional paths in a graph before the transformation, and said exceptional paths are removed.